

I CLAIM:

1. A method of automatic level control (ALC) in a video signal processing system having a signal with an added gain, the method comprising the steps of:
 - monitoring the back porch level at the video system output;
 - comparing the monitored back porch level with a selected target back porch level; and
 - controlling the back porch level by applying an offset adapted to the level of gain of the video system, thereby eliminating offset transient caused by a step change in the gain.
2. A method of automatic level control (ALC) in a video signal processing system according to claim 1 further comprising the reiteration of the steps at multiple stages in the video signal processing system.
3. A method of automatic level control (ALC) in a video signal processing system according to claim 1 further comprising the iteration of the steps at an analog stage of a video signal processing system.
4. A method of automatic level control (ALC) in a video signal processing system according to claim 1 further comprising the iteration of the steps at a digital stage of a video signal processing system.
5. A method of automatic level control (ALC) in a video signal processing system according to claim 1 wherein the step of controlling the back porch level further comprises the step of determining a new fine offset control value.

6. A method of automatic level control (ALC) in a video signal processing system according to claim 1 further comprising the reiteration of the steps at a rate slower than the line rate of the video system output.

7. A method of automatic level control (ALC) in a video signal processing system according to claim 1 further comprising the reiteration of the steps at the frame rate of the video system output.

8. A method of automatic level control (ALC) in a video signal processing system according to claim 1 further comprising the reiteration of the steps at a rate slower than the frame rate of the video system output.

9. An automatic level control (ALC) method for use in a video signal processing system, the method comprising the steps of:

determining the mean back porch level (N_{BP}) over a selected interval of the video signal;

selecting a target back-porch level (L_{NOM});

determining a new fine offset control value $O_F[n]$, described by the relationship;

$$O_F[n] = (1 - \alpha) * [N_{BP}/G_P - (N_{BP}/G_P - O_F[n-1]) * (a/b + G_F[n]) / (a/b + G_F[n-1])] + \alpha * [L_{NOM}/G_P - (N_{BP}/G_P - O_F[n-1]) * (a/b + G_F[n]) / (a/b + G_F[n-1])], \text{ [Equation 2]},$$

wherein;

$O_F[n]$ is the new fine offset control value;

$O_F[n-1]$ is the immediately preceding fine offset control value;

α is a recursive filter coefficient;

$G_F[n]$ is a fine gain control value;

$G_F[n-1]$ is an immediately preceding fine gain control value;

a is the y-intercept, and b is the slope of a linear fine gain control equation;

L_{NOM} is the target back porch level value referred to the signal output;

N_{BP} is the mean measured back porch level value; and

G_P is gain applied between a fine offset stage and the signal output.

10. An automatic level control (ALC) method according to claim 9 wherein the steps are performed at a rate slower than the line rate of the video signal.

11. An automatic level control (ALC) method according to claim 9 wherein the steps are performed at a frame rate of the video signal.

12. An automatic level control (ALC) method according to claim 9 wherein the steps are performed at a rate slower than the frame rate of the video signal.

13. An automatic level control (ALC) method for use in a video signal processing system, the method comprising the steps of:

determining the mean back porch level (N_{BP}) over a selected interval of the video signal;

selecting a target back-porch level (L_{NOM});

determining a new fine offset control value $O_F[n]$, described by the relationship;

$$O_F[n] = N_{BP}/G_P - (N_{BP}/G_P - O_F[n-1]) * G_F[n] / G_F[n-1] + \alpha * (L_{NOM} - N_{BP})/G_P,$$

[Equation 4],

wherein;

$O_F[n]$ is the new fine offset control value;

$O_F[n-1]$ is the immediately preceding fine offset control value;

α is a recursive filter coefficient;

$G_F[n]$ is a fine gain control value;

$G_F[n-1]$ is an immediately preceding fine gain control value;

L_{NOM} is the target back porch level value referred to the signal output;

N_{BP} is the mean measured back porch level value; and

G_P is gain applied between a fine offset stage and the signal output.

14. An automatic level control (ALC) method according to claim 13 wherein the steps are performed at a rate slower than the line rate of the video signal.
15. An automatic level control (ALC) method according to claim 13 wherein the steps are performed at a frame rate of the video signal.
16. An automatic level control method (ALC) according to claim 13 wherein the steps are performed at a rate slower than the frame rate of the video signal.
17. An automatic level control (ALC) system comprising:
 - means for processing an analog video signal;
 - means for processing a digital video signal;
 - means for automatic gain control (AGC) for maintaining the amplitude of the video signal;
 - means for automatically controlling the level of the video signal whereby the back porch level is maintained at a target value by applying an offset adapted to the level of gain of the video system, thereby eliminating offset transient caused by a step change in the gain.
18. An automatic level control (ALC) system according to claim 17 adapted to operate at intervals less frequent than the line rate of the video signal.
19. An automatic level control (ALC) system according to claim 17 adapted to operate at the frame rate of the video signal.
20. An automatic level control (ALC) system according to claim 17 adapted to operate at intervals less frequent than the frame rate of the video signal.